1992 THESIS/~~DISSERTATION~~

Theater Missile Defenses and U.S. Foreign Policy

(1)

Kyle W. Conway, 2nd Lt

AFIT Student Attending: Harvard University AFIT/CI/CIA- 92-036

AFIT/CI
Wright-Patterson AFB OH 45433-6583

THEATER MISSILE DEFENSES AND U.S. FOREIGN POLICY

Policy Analysis Exercise

by

Kyle W. Conway

April 7, 1992

John F. Kennedy School of Government
Harvard University

Advisors:
Peter Zimmerman
Ashton Carter

TABLE OF CONTENTS

EXECUTIVE SUMMARY

> The Theater Missile Defenses program element shall include programs, projects, and activities, including those previously associated with the Tactical Missile Defense Initiative, which have as primary objectives the following:
>
> (A) The development of deployable and rapidly relocatable advanced theater missile defenses capable of defending forward-deployed and expeditionary United States armed forces. Such a program shall have the objective of downselecting and deploying more capable TMD systems by the mid-1990s.
>
> (B) Cooperation with friendly and allied nations in the development of theater defenses against tactical or theater missiles.[1]

Congress' mandate for the Strategic Defense Initiative Organization (SDIO) recognizes the emerging threat ballistic missiles pose for future U.S. policy options. While official estimates differ, various public sources list twenty four developing countries as having some form of ballistic missile. Missiles are not only growing in numbers, but also in capabilities. In an even more disturbing trend, many of the same countries are also seeking to combine their missile technology with weapons of mass destruction.

The heaviest proliferation is concentrated in the Middle East and Asia, where the U.S. has obvious economic and strategic interests. Presently, the continental United States may not be in danger, but our allies and forward deployed troops face an immediate threat. Theater Missile Defenses (TMDs), offer some protection against a threat which previously went uncountered.

TMD systems can play a wider role in foreign policy besides just protecting U.S. troops. In the past, arms transfers and joint ventures in development and production have been used to further U.S. interests. TMD systems can be used in the same way, but with the distinct advantage of being less provocative and less destabilizing than offensive, strike-capable weapons. A survey conducted in this paper of the major regions of the world where the U.S. has compelling interests concludes that while joint development or production ventures may not be likely, there is a role for the sale or outright transfer of TMD systems.

Ballistic missiles pose a threat militarily, politically, and psychologically. Theater missile defenses can play a role in all three dimensions:

---

[1] U.S., Congress, Senate, National Defense Authorization Act for Fiscal Years 1992 and 1993, 102d Cong., 1st Sess., 19 July 1991, Rept. 102-113, pp. 38-39.

--**Militarily,** TMDs can protect forward troops and assets, as well as form closer links to regional security structures.

--**Politically,** defenses can reaffirm U.S. commitment, foster closer ties, help balance offensive capabilities, and provide options for crisis management.

--**Psychologically,** defense systems can counter the terror of ballistic missiles and act as substitutes for the stationing of U.S. forces.

An expanded role for TMD in foreign policy is its linkage with arms control efforts. This paper discusses the possible role TMD could play as an incentive for countries to join in arms control processes where they had no incentive in the past. Defenses could be used as incentives to: reduce current missile forces; not procure missile technology or weapons of mass destruction; and not supply such capabilities. By addressing the fears and instabilities generated by ballistic missiles, theater missile defenses could provide a first small step towards opening the arms control process.

Depending on the circumstances, the U.S. may want to exercise a certain degree of control or influence over the transferred systems. With this in mind, the various policy options proposed in this paper are:

--**Outright refusal of transfer.**

--**Deployment only in conjunction with U.S. forces.**

--**Allow purchase, with or without strings attached.**

--**Subsidized purchase or outright gifts with strings attached.**

--**Lend/Lease arrangements.**

TMDs are advantageous in that they offer a specific counter to a growing threat that has until now gone unanswered without inherently increasing the recipient's offensive capability. However, TMDs can suffer the same pitfalls endemic to the use of any weapon system as a foreign policy tool. Therefore, this paper presents a general framework to guide the use of TMD transfers in foreign policy. Defenses should:

--**maintain a low political profile;**

--**be used to pursue carefully selected policy objectives;**

--**be coordinated and integrated with other prioritized U.S. policies and objectives.**

More specifically, transfers of defenses from the U.S. to other countries need to be handled on a case-by-case basis within a regional context. Certain characteristics of

the recipient nation should be taken into account when deciding what sort of transfer should take place:

--regional stability and political climate;

--national doctrine;

--sophistication of military forces and infrastructure;

--relationships with other countries that may conflict with U.S. interests.

TMDs represent a powerful tool in foreign policy for protecting and promoting U.S. interests abroad. Being developed by an organization bent on the research and development of space-based defenses, and funded by a Congress focused mainly on developing continental defenses, the unique characteristics of theater missile defenses might be overlooked. As a result, their role as a tool in foreign policy is likely to to be underutilized or misused.

THE THREAT OF BALLISTIC MISSILES

With the breakup of the Soviet Union and the uncertainty surrounding the shape of the new world order, one foreseeable threat of growing significance is the proliferation of ballistic missiles throughout the Third World. Although attempts to control proliferation have been made through measures like the Missile Technology Control Regime (MTCR), little headway has been made. With the increasing availability of ballistic missile technology, threats to regional and international stability will undoubtedly increase.

Although estimates vary, the Stockholm International Peace Research Institute lists twenty four developing nations as having some form of ballistic missile capability.[2] While most Third World missiles have ranges of about 1,000 km (600 miles) or less, U.S. officials estimate that by the year 2000, six or more nations will have missiles of 3,000 to 5,000 km (1800-3300 miles), and some may be able to reach the United States.[3] The increasing accuracy of missiles is also disturbing. The circle error probable (CEP) of a Scud B is approximately 1000 yards at a range of 190 miles. If such a missile were to be equipped with an inertial navigation system available for commercial aircraft, it might be possible to obtain a CEP of 40 yards at 200 miles or 70 yards at 500 miles.[4] Another disconcerting trend is the increasing ability of Third World countries to produce ballistic missiles indigenously. Nine countries can already produce missiles and eight others are trying.[5] Director of Central Intelligence William Webster testified that by the

---

[2] Aaron Karp, "Ballistic Missile Proliferation in the Third World," in SIPRI Yearbook 1989: World Armaments and Disarmament, Stockholm International Peace Research Institute (New York: Oxford University Press, 1989), pp. 287-318. Rachel Schmidt also lists 24 nations as having some sort of ballistic missile capability in her RAND report, U.S. Export Control Policy and the Missile Technology Control Regime, (Santa Monica: RAND, 1990), pp. 7-8. Official U.S. Government estimates have been lower, ranging from 14 to 20.

[3] U.S. Congress, Senate, Armed Services Subcommittee on Strategic Forces and Nuclear Deterrence, Ambassador Henry F. Cooper, Director of the Strategic Defense Organization, Statement on the Strategic Defense Initiative 102d Cong., 1st sess., 20 June 1991

[4] Aspen Strategy Group, New Threats: Responding to the Proliferation of Nuclear, Chemical, and Delivery Capabilities in the Third World (Lanham: Aspen Institute & University Press of America, 1990), p. 8.

[5] Robert Shuey, Missile Proliferation: A discussion of U.S. Objectives and Policy Options (Washington, D.C.: Congressional Research Service, 21 February 1990), p. 4.

year 2000, some fifteen developing countries will be able to produce missiles indigenously.[6]

Perhaps the greatest concern over ballistic missile proliferation is the devastating effect they could wreak if coupled with nuclear, biological, or chemical warheads. The Congressional Research Service (CRS) reports that ten developing nations have either nuclear weapons or active research programs. Fourteen possess chemical weapons.[7] Added to these fears is the Third World's demonstrated willingness to use their missiles in conflict. The Gulf War is only the most recent example.

Implications for the United States

Many assert that the military significance of ballistic missiles is over emphasized. Due to their limited ranges and accuracies, ballistic missiles have relatively little military value in the eyes of nations with advanced militaries. In most cases, modern aircraft are cheaper and more efficient delivery platforms.[8] Advanced countries that have sophisticated air forces and are confident of achieving air superiority in a conflict have little need to rely on missiles.

According to a study conducted by Stanford University, "Ballistic missiles are of principal concern to the degree they are coupled to the delivery of nuclear, and to a somewhat lesser extent, chemical weapons." The study also points out that "there is an 'aura' accorded these systems in the developing world that is fed by high-level pronouncements of concern, handwringing and overemphasizing the importance or military utility of missiles."[9]

The threat posed by ballistic missile should not be lightly dismissed. Not all countries have sophisticated militaries. Ballistic missiles have become militarily

---

[6]U.S., Arms Control and Disarmament Agency, "Brief: Ballistic Missile Proliferation in the Developing World" in World Military Expenditures and Arms Transfers 1988 (Washington, D.C.: U.S. Government Printing Office, 1989), p. 17.

[7]Robert Shuey et al., Missile Proliferation Survey of Emerging Missile Forces (Washington, D.C.: Congressional Research Service, revised 9 February 1989), pp. 3, 35.

[8]For a discussion of the ineffectiveness of ballistic missiles, see Uzi Rubin, "How Much Does Missile Proliferation Matter?" Orbis 35 (Winter 1991): 29-39.

[9]Assessing Ballistic Missile Proliferation and Its Control (Executive Summary), John Harvey and Uzi Rubin, co-chairs (Stanford: Stanford University Center for International Security and Arms Control, October 1991), pp. 6, 8.

important to countries which might not have the capacity to achieve air superiority in a conflict. Thus, missiles represent the only means of striking an opponent.

In addition, the "aura" accorded ballistic missiles is significant in itself. Missiles are important symbols of national prestige and advancement in countries with little else to parade for the rest of the world. Perhaps most importantly, Third World ballistic missiles are extremely effective as weapons of political and psychological terror. Their speed and guaranteed ability to penetrate enemy territory--regardless of accuracy--offer a means of power projection and intimidation some countries would not otherwise have. The capacity for terror inherent in ballistic missiles was well demonstrated in the attacks on Israel by Iraqi Scuds.

As a CRS report points out, "even countries that have impressive armed forces capable of defending against ground, sea, and air attacks are vulnerable to missile attacks."[10] While the continental United States may not be directly endangered for some time, Third World ballistic missiles have been used against U.S. forces. Iraq did not hesitate to fire its missiles in the Gulf War, and Libya fired two Scuds at a U.S. installation on the Italian island of Lampedusa in 1986. There was also concern that U.S. troops deployed in Lebanon in 1984 would be vulnerable to Syrian missiles.[11] U.S. forces in South Korea also operate under the specter of a missile threat.

The threat posed by ballistic missiles limits the options available for U.S. action. Bases and forward deployed troops are endangered, as well as the ports and airfields used for rapid deployment. The growing missile threat necessitates the dispersal of assets far away from an area of conflict. Assets may also have to be diverted for counter operations against the missiles themselves.[12]

Missile proliferation does not just threaten U.S. forward deployed forces, but also several allies and countries friendly to the U.S. For example, a Libyan missile with a 1000 km range could hit targets as far north in Italy as Rome, Israel's major cities, parts of Turkey, and all of Greece and Egypt.[13] Thus, unilateral action as well as coalition action could be hamstrung. In a world where cooperation and coalition may be

---

[10] Shuey, et al., p. 10.

[11] Seth Carus, Ballistic Missiles in the Third World: Threat and Response (New York: Praeger, 1990), p. 54.

[12] During the Gulf War, up to 72 aircraft per day were dedicated to counter operations against Scuds.

[13] Carus, p. 54.

increasingly required for action, the impact of a distant, undefendable threat could be devastating. If Israel had entered the war in response to Iraqi missile attacks, the fragile Gulf coalition might have collapsed.

THEATER MISSILE DEFENSES AND U.S. POLICY

Present Systems and Development

For missile defense, the U.S. relies on the Patriot, a modified anti-aircraft missile system with a limited anti-ballistic missile capability. With the "Patriot Advanced Capability" upgrade, or "PAC-2," Patriot has a "footprint" radius, or area it can effectively defend, of about 20 km. A follow-on PAC-3 modification is expected to increase the footprint radius to about 30 km.[14] Following the highly publicized use of Patriots in the Gulf War, the need for theater defenses was given more attention. As a result, Congress made "the development of deployable and rapidly relocatable advanced theater missile defenses capable of defending forward-deployed and expeditionary United States armed forces" a primary objective in the National Defense Authorization Act for fiscal year 1992.[15]

The U.S. is currently pursuing four TMD programs:

--Extended Range Interceptor (ERINT), a smaller system than Patriot but with a larger footprint than the PAC-2;

--Corps SAM, expected to have a missile defense footprint of about 40 km;

--Theater High Altitude Area Defense (THAAD), expected to defend a footprint of about 200 km and have multiple shots at incoming missiles;

--Arrow, an area defense system less capable than THAAD being codeveloped with Israel.[16]

The Navy is also examining the possibilities of equipping their Aegis missile cruisers with TMD systems.

---

[14]Eric H. Arnett, Issue Paper: Ballistic Missile Defense After the Kuwait War (Washington, D.C.: American Association for the Advancement of Science, 1991), p. 7.

[15]U.S., Congress, Senate, National Defense Authorization, p. 38.

[16]Arnett, pp. 8-9.

Within the U.S. government, theater missile defenses have always been treated as something of a step-child. Since the rebirth of missile defenses under the Reagan administration, the greatest emphasis has been on continental and space-based strategic missile defenses. With the warming of relations with the Soviet Union in the late eighties and its eventual demise, the threat of ballistic missile proliferation caused a reassessment of the role of TMDs. In 1991, the Bush administration restructured the Strategic Defense Initiative (SDI) to address defense against theater ballistic missiles as one of its elements.

Traditional Foreign Policy Roles

Despite the inherent non-aggressive nature of defenses, TMD systems have thus far been used in the same roles as offensive weapon systems for foreign policy. Traditionally, foreign policy objectives have been advanced through transfers and codevelopment or coproduction. In the past, arms transfers have been used in three basic roles: as symbols, as substitutes, and for leverage.

Arms can symbolize the political commitment of the U.S. and serve to strengthen both the internal and external security of the recipient nation. They can substitute for the stationing of troops, alliance commitments, or take the place of indigenous arms development. Weapons transfers have also been used as political levers to exert control or to gain access to bases. Militarily, they are also useful levers to alter regional balances of power. There are economic advantages to arms transfers as well, such as reducing balance of payment accounts, recouping research and development costs, lowering unit costs, and maintaining a competitive industrial base. Cooperative ventures have been pursued for many of the same reasons, especially for the economic incentives.

How well TMDs can be used in these foreign policy roles is highly dependent upon their future capabilities. So far, the Patriot system only provides limited capabilities as a point defense. Obviously more robust capabilities for larger area defense (like those planned for the THAAD system) will increase the versatility of TMDs in foreign policy. This paper assumes effective systems for both point and area defenses will be available in the near future.

The usefulness of TMDs in foreign policy will also be impacted by restraints imposed by the Anti-Ballistic Missile Treaty (ABM) and the Missile Technology Control Regime (MTCR), both of which seek to limit the transfer and development of missile technology. Such potential problems are beyond the scope of this analysis. This paper

assumes compliance problems regarding TMD systems and these control regimes can be worked out.

THEATER MISSILE DEFENSES AND THE INTERNATIONAL ENVIRONMENT

TMD AND THE NATO ALLIES

The European Perspective

Much of the theater missile defense debate within Europe has been conducted in the Cold War context of a possible war between NATO and the Warsaw Pact. The archetypical scenario envisioned Soviet tactical missiles being employed early in a conflict to knock out important assets such as nuclear weapons, air bases, command and control centers and air defense systems.[17] While the need for theater defenses even within this scenario was hotly contested within NATO, the end of the Cold War has annulled the most compelling argument for a NATO TMD system. The INF Treaty of 1987 removed the most likely threat, and the demise of the Warsaw Pact and the Soviet Union has made future military confrontation unlikely.

The potential threat of Third World ballistic missiles has not commanded the same attention in Europe as it has in the United States. The limited ranges, payloads, and accuracies of missiles outside of the European theater are not viewed as threatening to national security as they are by the U.S. government. Europe is more likely to view Third World missiles as weapons of terrorism. Since little can be done to thwart determined terrorists, Europeans feel they can gain more from investing in non-proliferation efforts. The costs of TMDs may seem unjustifiable and politically unsustainable, especially if development has to compete for increasingly scarce resources.

Serious discussion on the issue of TMD began in Europe in 1985, when the NATO countries were formally invited to join the U.S. in SDI, specifically in the development of theater missile defenses.[18] The Reagan Administration's original concept of SDI received a very cool reception among the NATO allies. The invitation to participate in TMD development was viewed by some critics as payment of a "political

---

[17] Ibid., p. 5.

[18] Bhupendra Jasani, "Eureka--How Much of a European SDI?" in Strategic Defences and the Future of the Arms Race, eds. John Holdren and Joseph Rotblat (London: Macmillan Press, 1987), p. 171.

dowry" to alleviate European fears of being left defenseless as the U.S. retreated behind its own protective shield.[19] European development was also seen as a way to get around testing prohibitions of the ABM treaty. A European TMD could serve as a test bed for technologies for a larger continental defense of the U.S.[20] There was also fear that European participation would result in exploitation, with the United States skimming off the best of European scientific and research talent.[21] Not overlooked was the fact that European involvement could be used to bolster domestic support in the U.S. as a sign of at least tacit NATO approval for the controversial SDI program.[22]

In response to some of these fears, France led a discussion of the establishment of a European Defense Initiative. The West German government also stepped forward in support of a European defense system. Together, France and Germany began coordinating political and scientific studies addressing the issue.[23] France also proposed a coordinated scientific research organization called Eureka. Eureka was envisioned not only as a way to counter the "brain drain" of European expertise, but also as a way for Europe to keep pace with future technological and commercial advantages likely to come from the concentrated U.S. research efforts of SDI.[24]

Despite initial reservations, most of the European allies saw participation in SDI as a way to secure benefits for European technology and industry.[25] It was hoped that the commercial spinoffs would enhance their competitive advantages in several areas. In

---

[19]Bernd W. Kubbig, The SDI Memorandum of Understanding Between Bonn and Washington: A Review of the first Three Years (Frankfurt: Peace Research Institute Frankfurt, 1989), p. 23.

[20]Lawrence Freedman, "British Attitudes on SDI," in Strategic Defenses and the Future of the Arms Race, p. 149.

[21]Donald Hafner and John Roper, eds., ATBMs and Western Security (Cambridge: Ballinger, 1988), p. 15.

[22]Kubbig, p. 23, and Kappen, p. 8 .

[23]Samuel F. Wells Jr., "SDI, Eureka, and European Cooperation," in Strategic Defense and the Western Alliance, eds. Dan Quayle, Robert E. Hunter, and C. Elliot Farmer (Washington, D.C.: Center for Strategic and International Studies, 1986), p. 27.

[24]Jasani, p. 171.

[25]Rip Bulkeley, "Missile Defence in NATO Europe," in Strategic Defences and the Future of the Arms Race, p. 135.

addition, many countries hoped their participation would offer a way to influence the broader SDI program and insure their interests were protected.[26]

U.S. courtship of European participation led many governments to expect equal partnership and a free exchange of knowledge as well as the opportunity for independent research.[27] Most governments shared the same objectives: legal rights to market SDI inventions, guarantees for follow-on work in the areas of development and production, and a guaranteed share of SDI markets.[28]

Since 1985, the U.S has signed formal memorandums of understanding with Germany, Italy, and Britain. The U.S. also has contracts with Belgium, Canada, Denmark, France, Germany, Italy, the Netherlands, and Britain.[29] Most of these contracts are for small elements of SDI, not TMD. Those contracts that are for TMD are, for the most part, architecture studies.

Gains for the allies have been disappointing. The total value of European contracts awarded thus far (for SDI research, not just TMD) is only about $270 million--out of a total SDI budget of billions.[30] A 1989 report by the Frankfurt Peace Research Institute shows that nearly all of the expectations for cooperative development have been unfulfilled.[31] Because of restrictions on the transfer of data and technology and the restricted use of research findings, equal partnership and free exchange of know-how has yet to be realized. Civilian spinoffs are expected to be insignificant. Independent research is not likely to be allowed either, since few European countries are the prime contractors for research areas--even for the architecture studies, which are basically written exercises.[32]

---

[26]Kubbig, p. iv, and Buckeley, p. 135.

[27]Kubbig, pp. i, iii.

[28]Freedman, p. 147.

[29]U.S., Strategic Defense Initiative Organization, Report to the Congress on the Strategic Defense Initiative (Washington, D.C.: U.S. Government Printing Office, May 1991), pp. 5/3-5/4.

[30]Includes Canada. Briefing, "Allied Perspectives of Strategic and Theater Missile Defense" to AUSA-USASDC Symposium "Army Strategic and Theater/Tactical Missile Defense: A Critical Element in the New National Strategy" by Stanley Orman, CEO General Technology Systems, December 1991.

[31]Kubbig, see note 19.

[32]Kubbig, p. 10.

The U.S. Perspective

Allied disappointment in the worth and quality of their participation in the development of SDI is obvious. As David Martin, director of international programs for the Strategic Defense Initiative Organization (SDIO) put it, "I think there was this expectation--unrealistic--among allies that there would be this pot of gold."[33] Perhaps to address this issue, congressional wording was inserted into the 1992 defense appropriations bill making a primary objective "the cooperation with friendly and allied nations in the development of theater defenses against tactical or theater ballistic missiles."[34] Despite this, however, little can be done to appease allied misgivings and encourage cooperative ventures in the defense arena. In fact, the total value and number of contracts with non-American institutions has declined in recent years.[35]

Policy Implications

Despite close relationships, the prospects for cooperative development with the European allies appear grim. The United States has made such progress in the area of theater defenses that it probably has little to gain from the research of others. Allied cooperation will most likely be kept limited and be delegated to the broader strategic application of defenses--areas where the U.S. has something to gain. Testimony by Assistant Secretary of Defense for International Security Policy Stephen Hadley seems to leave it up to the allies to go it alone: "If friends and allies decide to deploy their own theater missile defense, we would envision them as being autonomous systems capable of being interoperable with elements of U.S. defenses . . . ."[36]

Although interest in cooperative development is waning, interest in acquiring TMD systems is not. The Gulf War heightened interest in TMDs and drew attention to the dangers of ballistic missile proliferation. Germany and the Netherlands already had Patriot units, and since the war Britain, Italy, and Turkey have expressed

---

[33]James R. Asker, "Allies Show New Interest in SDI, Theater Missile Defense Research," Aviation Week and Space Technology, 17 June 1991, p. 105.

[34]U.S., Congress, Senate, National Defense Authorization, p. 39.

[35]Asker, p. 105.

[36]U.S. Congress, Senate, Armed Services Subcommittee on Strategic Forces and Nuclear Deterrence, Statement of Assistant Secretary of Defense for International Security Policy Stephen J. Hadley, 102d Cong., 1st sess., 20 June 1991.

interest in purchasing Patriot units for themselves.[37] The Mediterranean location and proximity to the Middle East of the latter two make the threat of ballistic missiles more acute. Italy has not forgotten the two Libyan Scud-Bs launched at Lampedusa in 1986.

The removal of the Soviet threat diminishes the need for a system of theater defenses under the auspices of NATO. However, the deployment of U.S., German, and Dutch Patriot batteries to the Gulf points out the role for TMD systems in out-of-area conflicts beyond the auspices of NATO. Independently controlled TMD systems would offer European countries the same policy options the United States enjoys. **Although cooperative development may be a missed opportunity, the transfer of TMD systems may offer a way of maintaining a U.S. role in Europe and the evolving European security structure coming with the integration of the European Community.**

---

[37] David Hughs, "Saudi Order to Keep Patriot Line Open as Performance in Israel is Questioned," Aviation Week and Space Technology, 25 November 1991, p. 38.

TMD AND RUSSIA

The Russian Perspective

Russia and the newly independent states of the former Soviet Union are certainly not immune from the threat of ballistic missile proliferation and regional arms races. For years during the Cold War, the Soviet Union fueled proliferation with arms transfers comprising 50% of its foreign economic assistance.[38] Most of the missiles in the possession of the Third World came from the Soviet Union. Now, well-armed and disaffected client states can easily threaten their former supplier given the close proximity of Asia and the Middle East. Russia has recognized this potential danger from proliferation. Writing before the fateful events of 1991, William Potter and Adam Stulberg pointed out, "in terms of declaratory policy, the Soviet Union clearly has elevated the priority attached to missile proliferation."[39]

Potential threats not only come from outside the borders of what was once the Soviet Union, but from within as well. Deep rifts involving ethnic minorities and historical border disputes plague the new states. Such animosities run from hot clashes such as the Armenian-Azerbaijani conflict to territorial assertions by Ukraine. Who exactly controls the huge stockpile of Cold War weaponry in the former Union is still questionable. Accountability has focused on the nuclear arsenal, but little has been said about conventional ballistic missiles. With the economic and political chaos gripping these new states and the fate of the Soviet military forces still up in the air, degeneration into a Yugoslavian-type conflict with advanced weaponry is not an impossible scenario.

Interest in ballistic missile defenses is as old in Russia as it is in the U.S. Russia has the world's only operational area defense against ballistic missiles around Moscow. Russia also has its own version of a TMD system in the SA-12, which was tested in anti-tactical ballistic missile mode in the early eighties. Russia has even offered a TMD system for sale at the Paris air show.[40]

---

[38] William C. Potter and Adam Stulberg, "The Soviet Union and Ballistic Missiles," Survival 32 (November/December 1990): 545.

[39] Ibid., p. 552.

[40] Arnett, p. 9-10.

Knowing it was lagging in research and development of global space-based defenses, the Soviet Union always sought to collaborate with the U.S. in SDI. Russia has continued with similar proposals. Given its indigenous theater capability in the SA-12, it has more to gain in emphasizing space research. Considering the sensitivity of the technology involved, however, cooperative defensive space research is unlikely.

The U.S. Perspective

The U.S. has an obvious interest in making sure the largest military arsenal in the world is accounted for and under stable control. The sale of ballistic missile technology to the Third World is hard to resist for a nation desperate for hard currency. Preventing the migration of scientists and technicians to Third World nations is also a concern.

While the U.S. seeks to aid the transition of the former republics to democracy, forty-plus years of Cold War pragmatism is not easily overcome. Given the sensitivity of either country to sharing information, cooperation in development of defenses is unlikely. Russia does have advanced technology for space applications that the SDIO is interested in purchasing. But as with most other countries, the U.S. seems to have more to lose than gain in a cooperative venture with Russia.

Policy Implications

Because of the close proximity of potential threats, the need of TMD in Russia and the successor nations of the Soviet Union is more pressing than in the United States or Europe. Development of the Russian TMD production capability for foreign sale could hold promising opportunities for a small sector of Russia's military industrial complex. A greater emphasis on the foreign sale of TMD systems in lieu of more provocative offensive weapons would be a way of keeping at least some of Russia's scientific military expertise occupied while providing a source of much needed foreign income. However, the benefits of TMD in this regard would be miniscule in the face of the economic catastrophe gripping Russia.

The U.S. may not want to promote development of this sector of the Russian military-industrial complex, for it raises important questions. Such technology could be utilized by countries to improve the capability of their missiles to penetrate defensive systems. This issue should also be factored into U.S. policy regarding its own TMD systems as well.

TMD AND THE MIDDLE EAST

The Middle Eastern Perspective

The greatest proliferation of ballistic missiles is centered in the Middle East and North Africa, where ten countries have some sort of offensive missile capability.[41] Saudi Arabia has the largest missile deployed outside of the five acknowledged nuclear powers, the CSS-2, with a range of approximately 1600 to 1860 miles.[42] At least three other countries (Egypt, Iraq, and Israel) are known to have missiles with ranges of 500 miles or more.[43] Egypt, Israel, Iran, and Iraq have an indigenous production or modification capacity, and there is strong evidence that Libya is pursuing indigenous development as well.[44]

Particularly worrisome is the trend that weapons of mass destruction are being actively sought to complement ballistic missiles. Israel is thought to have a nuclear weapons capability and Iran and Iraq are known to have active development programs.[45] Post-war inspections of the Iraqi nuclear development program have revealed Iraq was much farther along in its nuclear capability than the West suspected. Chemical weapons are more widespread: Israel, Libya, Iran, Iraq, and Syria are known to produce chemical weapons and Egypt is highly suspected to possess them.[46]

The Middle East is a region of internecine conflict where ballistic missiles are accorded great value. Potential protagonists to the U.S and its interests have not hesitated to use these weapons either. Ballistic missiles have been utilized in Middle East

---

[41] From a compilation of resources, Rachel Schmidt lists Algeria, Egypt, Iran, Iraq, Israel, Kuwait, Libya, Saudi Arabia, Syria, North Yemen, and South Yemen as having at some kind of ballistic missile. Schmidt, pp. 7-8.

[42] Steve Fetter, "Ballistic Missiles and Weapons of Mass Destruction: What is the Threat? What is to be Done?" International Security 16 (Summer 1991): 7, and ACDA, p. 18.

[43] ACDA, p. 18.

[44] Kathleen C. Bailey, "Can Missile Proliferation be Reversed?" Orbis 35 (Winter 1991): 7, and Schmidt, pp. 10-11.

[45] Shuey, et al. Missile Proliferation Survey, p. 3.

[46] Ibid., p. 35.

hostilities four times since World War II.[47] Over 1,000 missiles are estimated to have been launched in the Iran-Iraq "war of cities."[48] Iraq launched an estimated 80 ballistic missiles against Saudi Arabia and Israel during the Gulf War.[49]

With its active border disputes and constantly changing alliances, the slightest shift in the balance of power in the Middle East causes nations to counter marginal improvements in offensive military capabilities. Thus, even the repudiated success of the Patriot system in the Gulf War has heightened the interest of Middle Eastern countries in purchasing TMD systems. Egypt, Israel, Kuwait, Saudi Arabia, and the United Arab Emirates have expressed interest in purchasing Patriot batteries.[50]

Israel is the only country with whom the U.S. has a cooperative development program. The program, called Arrow, is intended to provide area defense in a 25 km radius (roughly the size of an urban center) against missiles with ranges of up to 1000 km.[51] The U.S. funded 80% of the first phase of the project, and will bear 72% of the costs for the second phase of testing known as Arrow Continuation Experiments (ACES).[52] In addition to providing Israel with its own indigenous missile defense, it was also hoped that the Arrow could compete among designs for the next iteration of U.S. TMD systems. However, design and testing problems have plagued the Arrow project, making this unlikely given the pace of U.S. development of its own ERINT and THAAD systems. The slippage in the Arrow and ACES program and budget cutting has called continuation of U.S. support into question.

---

[47]Karp, p. 290. Egypt and Syria at Israel in 1973, Libya at Lampedusa (Italy) in 1986, Iran and Iraq in 80-88, and the most recently during the Gulf War of 1991.

[48]ACDA, p. 20.

[49]Fetter, p. 6.

[50]Hughs, p. 38. For a discussion of the shortcomings of the Patriot defenses, see Theodore A. Postol, "Lessons of the Gulf War Experience with Patriot," International Security 16 (Winter 1991/1992): 119-171.

[51]Arnett, p. 9.

[52]Marvin Feuerwerger, The Arrow Next Time? Israel's Missile Defense Program for the 1990s, (Washington, D.C.: Washington Institute for Near East Policy, 1991), p. 33.

The U.S. Perspective

U.S. security, economic, and political interests in the Middle East run deep. The United States is in the delicate position of balancing its strong support and close ties with Israel while at the same time maintaining a secure oil supply through close relationships with moderate Arab states. In hopes of moderating the animosities between these two factions, the U.S. has recently sponsored the Middle East peace talks. The U.S. and moderate Islamic states also have an interest in countering the rising Islamic fundamentalism and anti-western semitism being sponsored by Iran.[53] The Islamic ex-Soviet Republics are especially vulnerable to this influence. Stronger ties to the key moderate Islamic states of Saudi Arabia, Egypt, and Turkey could prove pivotal to future U.S. influence in the region.

In an effort to enhance the regional balance of power and bolster U.S. standing in the Middle East, the Bush administration is pursuing arms transfers to the area amounting to $6 billion.[54] In the past, sales of advanced weapons have encountered strong opposition by supporters of Israel. The debate over whether the inherent offensive capabilities of modern weapons systems such as the F-15 could be used aggressively by Arab states against Israel is bound to complicate any sale of weapons to the region.[55]

Although the expense of supporting the Arrow program is not inconsequential, the arrangement does have rewards for the U.S. In many ways, the Israeli program is doing what the Europeans were afraid a U.S.-NATO joint program would do: serve as a test bed for possible applications to the larger SDI program. Arrow provides the U.S. a way of analyzing unique design characteristics and operating concepts in area defense it otherwise might not pursue.[56]

---

[53] Youssef M. Ibrahim, "To Counter Iran, Saudis Seek Ties with Ex-Soviet Islamic Republics," New York Times, 22 February 1992, p. A4.

[54] Eric Schmitt, "White House, Eager and Anxious, Wants to Sell 72 F-15's to Saudis," New York Times, 26 February 1992, p. A6.

[55] A heated debate over whether the offensive capability of Saudi Arabia would be enhanced arose over the sale of AWACs platforms in the early eighties. Similar arguments arose over the subsequent sale of F-15s. See Michael T. Klare, American Arms Supermarket, (Austin: University of Texas Press, 1984), p. 152.

[56] For example, the Arrow seeker system is in a different location than U.S. concepts. Asker, p. 108.

Policy Implications

Since the moderate Arab countries have limited arms production capabilities, the possibility of some type of cooperative venture is not likely. Nor would it be in the U.S. interest, given the dynamics of Middle East politics. It is therefore much easier for these pro-U.S. states to purchase U.S. systems off the shelf as they do other types of U.S. equipment.

Continued U.S. support for the development of an Israeli defense system could help ease anxiety over Israel's vulnerability to the increasing missile threat it faces. Politically, such support would also be a reaffirmation of U.S. commitment to the state of Israel, while offsetting the unsettling consequences of more arms transfers to its Arab neighbors. In the short run, such a step to meet the security concerns of the Israelis might help the peace process.

To the extent that TMD systems are not inherently offensive, the sale of defensive systems to the moderate Arab countries of the Middle East could soften the offense/defense debate surrounding most arms transfers to the region. Such transfers would still have the symbolic benefits of other weapons sales while at the same time **providing a first step to deemphasizing the build-up of offensive strike capabilities in the region. However, this tension in maintaining the balance of power in the region raises the possibility of arms racing between constantly improving and proliferating offensive and defensive systems.** This must be taken into consideration in any policy decision.

TMD AND ASIA

The Asian Perspective

The second major concentration of ballistic missile proliferation is centered in Asia. China's production abilities are well known, and North Korea and South Korea are known to have indigenous missile production capacities as well.[57] North Korea is the only producer of Scuds outside of the former Soviet Union and China, and readily exports missile technology.[58] South Korea has been developing its military industrial complex to gain greater self-sufficiency. Demonstration of its abilities can be seen in its indigenously produced surface-to-surface missile, the design of which came from reverse-engineering of U.S. Nike-Hercules surface-to-air missiles.[59]

India could be on the verge of indigenous production with the testing of its Privthi missile. India has also demonstrated successful development of an indigenous space launch capacity with the launching of its first satellite into orbit in 1980.[60] This could one day give India the ability to produce missiles of intermediate and intercontinental ranges. Pakistan claims to have launched a ballistic missile in 1988, although little is known of its capabilities.[61] Taiwan is also reportedly pursuing an indigenous capacity with the development of its Sky Horse missile. Accounts vary as to the status of the program.[62]

Just as in the Middle East, many of the same countries pursuing ballistic missiles are also seeking chemical and nuclear capabilities. Of the Asian countries with ballistic missiles, China, North Korea, South Korea and Taiwan reportedly have chemical weapons.[63] India is known to have the ability to produce nuclear explosives.[64] Pakistan

---

[57] Shuey et al., Missile Proliferation Survey, p. 2.

[58] Arnett, p. 6, and Shuey et al., p. 80.

[59] Shuey et al., p. 81.

[60] Karp, p. 296.

[61] Shuey, et al., p. 77.

[62] Ibid., p. 82, and ACDA, p. 19.

[63] Shuey et al., p. 35.

confirmed in February that it too had a nuclear weapons capability.[65] South Korea and Taiwan may be able to produce nuclear weapons by the turn of the century.[66] North Korea's nuclear potential has recently been under more intense scrutiny as there have been indications that the country is further along in its development than anyone suspected.[67]

Asia has several on-going disputes and conflicts, many of which have escalated to armed confrontations in the past. The hostilities between North and South Korea are prime examples, as are the three major wars between Pakistan and India and their continuing conflict over the Kashmir region.[68] There are numerous other border disputes in the region as well, including disputes between China and India, and Kampuchea and Thailand.[69]

Central Asia saw an influx of U.S.-Soviet involvement in regional affairs during the Cold War. When the Soviets invaded Afghanistan, the U.S. backed Pakistan to counter Soviet support to India. Pakistan also courted support from China, who is still viewed as a threat by India. The demise of the Soviet Union has since left both India and Pakistan without their major benefactors. The decline of counterbalancing superpower influence has also left the region without a check on the growing Chinese influence.

As the threat from ballistic missiles in Asia grows, so does interest in defenses. Japan has recently expressed a growing interest in Patriot.[70] Taiwan and South Korea are also interested in acquiring their own TMD systems.[71]

---

[64]Ibid., p. 24.

[65]Paul Lewis, "Pakistan Tells of Its A-Bomb Capacity," New York Times, 8 February 1992, p. A5.

[66]Shuey et al., p. 25.

[67]Elaine Sciolino, "U.S. Agencies Split Over North Korea," New York Times, 10 March 1992, p. A1.

[68]Rosemary Foot, "Arms Control and Sino-Indian Relations," in Arms Control in Asia, ed. Gerald Segal (New York: St. Martin's Press, 1987), p. 101.

[69]Segal, p. 13.

[70]Asker, p. 105.

[71]Hughs, p. 38.

The U.S. Perspective

Georges Tan Eng Bok sums up the security implications of at least the eastern portion of Asia in his description of Korea: "The Korean peninsula is the sole place in East Asia where the vital interests of three nuclear powers and one economic superpower interact." As he points out, U.S. security agreements with Japan and South Korea are inextricably linked, since South Korea controls a key entrance to the Sea of Japan from the Pacific and hence basing facilities in Japan. Russia also has strategic interests from its border with North Korea, perhaps the most important one being access to ice-free ports.[72]

Farther to the west, Pakistan and India border the Arabian Sea, strategically vital for the flow of oil out of the Persian Gulf. These two countries may also provide an outlet to moderate the spread of Islamic fundamentalism throughout Southwest and Central Asia. Pakistan has recently encouraged the U.S. to look to Islamabad as an agent for developing links to the Central Asian republics of the former Soviet Union and limiting the influence of Iran.[73]

Policy Implications

Most of the countries in Asia lack the political ties to the U.S. and the necessary military industrial capacity to make cooperative development of TMD feasible. As the European experience has borne out, the commercial benefits and technological spinoffs from TMD technology has been quite limited. As such, the more industrially advanced and capable Asian countries like Japan, Taiwan, and South Korea are not likely to be very interested.

However, defenses could still play an important role in the region. **Transfers of TMD systems can provide a means of fostering U.S. ties in the area through less provocative means than transfers of offensive arms in the past.** The relatively limited sophistication and diversity of military forces in Asia offer the opportunity for TMDs to play an influential role. The effectiveness of present and planned TMD systems is likely to be favored since the capabilities and numbers of missiles in that part

---

[72]Georges Tan Eng Bok, "Korean Arms Control," in Arms Control in Asia, pp. 67-68.

[73]Edward A. Gargan, "The Chastened Pakistanis: Peace With U.S. is Aim," New York Times, 19 February 1992, p. A10.

of the world are still comparatively limited. **TMDs may provide a way of easing and stabilizing tensions by offering a counter to the unstable missile forces now beginning to proliferate.** Reducing vulnerabilities to missile attacks could be an important first step in settling some of the conflicts gripping much of the region.

TMD AND FOREIGN POLICY

An Assessment

The results of using offensive weapons in foreign policy have been mixed at best. The main reason is because maintaining delicate balances of power with patently offensive arms is tricky. A second reason is the lack of control over how those weapons are employed once in the hands of a foreign government.

Theater missile defenses are not immune from these pitfalls. Defense technology could eventually be exploited to enhance the offensive capability of offensive missiles. The availability of technology could conceivably trigger an arms race between increasingly capable offensive and defensive systems. Some critics also point out that a country might be tempted to launch aggression against a neighbor under the protection of highly effective future defenses.

Such negative consequences are complex scenarios and must be weighed against the powerful positive effects TMDs can have. Many of the side effects can be avoided through careful implementation of a transfer policy. Equally complex counterarguments exist for these possible shortcomings as well.

The basic utility of ballistic missiles themselves may be a limiting factor for the negative arguments. The exclusive pursuit of enhanced offensive or defensive missile capabilities would most likely come at the expense of other more conventional elements of force structure (e.g., rifles and tanks). Trade-offs would inevitably have to be made. Thus, as a result of over-emphasizing one aspect, some element of the country's forces will always be vulnerable--a daring risk to take. Furthermore, upsetting the balance of power by racing for new capabilities will simply be more difficult and expensive in the future since the patronage of competing superpowers is no longer forthcoming.

Possible Roles

The survey of the major regions where the U.S. has security interests threatened by the proliferation of ballistic missiles shows that **cooperative ventures in the field of TMD are not likely**. There is considerable concern over the issues of ownership and the sharing of sensitive technology, even with our closest allies. Past experiences resulting in a one-way flow of expertise out of the U.S. has helped shape American policy for cooperative ventures in weapons manufacturing. The resulting laws are restrictive and

conditional to insure the United States gets full benefit and U.S. firms get top priority. Most nations are not interested anyway, since the commercial benefits and marketable spinoffs are limited.

However, this does not mean that interest in acquiring missile defense systems is waning. On the contrary, the reverse is true. The missile threat is more real for some countries than others. For the countries in the Middle East and Asia, or those bordering these regions (like Turkey or Russia), the advantages of having some form of TMD system are obvious. Even countries farther removed, like the European allies, see the advantages of TMD systems.

Drawing from the analysis of the U.S. and the international environment, theater missile defenses offer unique advantages as foreign policy tools:

1) **TMD addresses an immediate and improving threat with an immediate and improving capability.** Such a threat has heretofore gone unanswered.

2) **Militarily:**
   --TMD systems provide options which would otherwise have been limited or even impossible through the protection of forward deployed forces and assets.
   --The transfer of TMD systems can establish closer links to regional security structures.

3) **Politically:**
   --TMDs can provide a less provocative means of reaffirming U.S. support for a country.
   --TMDs can provide a means of fostering closer ties in regions where they have traditionally been weak.
   --Transfer of TMD systems can help maintain the balance between offensive capabilities.
   --TMD systems can provide options for crisis management and enhanced stability by providing options other than prompt retaliation or preemption.

4) **Psychologically:**
   --TMD counters the greatest threat currently posed by Third World ballistic missiles--their usefulness as political and psychological terrorist weapons. Even if little can be effectively done to prevent the use of terrorist weapons, defenses can serve as placebos for a fearful population.
   --In a time of force reductions and budget cuts, TMD

systems can act as substitutes for the stabilizing and protective presence of American forces abroad.

TMD and Arms Control: Another Foreign Policy Role

In addition to the traditional roles weapons have played, **TMDs may provide a new tool to help decrease the emphasis on acquiring destabilizing offensive weapons.** Defenses, even if limited in their capabilities, can provide the first positive step towards wider arms control agreements. As mentioned above, by simply providing another option besides prompt retaliation or preemption through offensive means, crisis management can be enhanced and stability bolstered. Even if defenses offer only a small step forward, that would be a help, for the arms control process is most often a culmination of very small steps. By offering a stabilizing element to a region dominated by destabilizing offenses, TMD systems may be able to help alleviate the fear and distrust which previously precluded the possibility of any kind of agreement.

Neither defenses nor arms control are completely effective; both have leaks and loopholes. Both concepts have been accused of lacking the robustness needed to keep up with the rapid pace of proliferation and technological advancement. **However, arms control and TMDs can complement each other to offset their weaknesses. Both can work synergistically**: TMDs can reduce basic tensions and open the door for the arms control process. As arms control makes progress, TMDs are made even more effective through the reduction of the missiles it is designed to counter, as well as using the time created to upgrade capabilities.

Arms control often fails because the incentives for parties to come to the table are lacking. By devaluing the utility of ballistic missiles, defenses would theoretically reduce the incentive to acquire offensive missiles. TMD could serve as an incentive to join the arms control process by offering a substitute to ballistic missiles on both the demand and supply side of the proliferation equation. Providing or assisting in the development of TMD systems could be offered as:

--an incentive to reduce current missile forces;

--an incentive not to supply missile technology or weapons of mass destruction;

--an incentive not to procure or develop missile forces or weapons of mass destruction.

Recognizing that ballistic missiles are but one component of a vast arsenal of threats, TMD will probably be most effective as part of a larger incentive package of alternate security arrangements.

The use of weapons for such incentives has been done before. Hefty military aid was given to Israel and Egypt as an incentive to reach the Camp David Agreement of March 1979.[74] In the seventies, U.S. efforts to keep South Korea from developing a long range surface-to-surface missile included transfers of military equipment as well as participation in the coproduction of the F-5 fighter aircraft.[75] One criticism often raised about substituting one offensive capability with another is that the **transferred weaponry advances the offensive capability of the recipient country** even farther than it could have achieved for quite some time on its own. **Missile defenses avoid this criticism by not directly adding to the offensive capability of the recipient.**

The introduction of TMD could help arms control processes that have been stagnating for some time. In addition, their role is compatible with many on-going initiatives in the regions where they are needed most: the Middle East and Asia. For instance, TMDs could reinforce the proposal for a Middle East nuclear weapons free zone proposed by Egyptian President Mubarak.[76] **The added degree of security could ease tensions and offer protection against perceived violations of an arms accord.**

The introduction of TMDs would also be complementary with Asia's approach to arms control which emphasizes informality, demilitarization, and confidence building measures.[77] TMD systems could enhance stability by offering protection to the highly vulnerable fledgling missile forces throughout the region. This is especially important to reducing tensions in the Indian-Pakistani conflict. The added degree of security might also help ease anxiety over the difficulty of strict verification in the regions due to lack of means.

Provision of TMD is this context would also help to answer charges often levied by the Third World that the arms control process is discriminatory and not universally applied. The developing world has often pointed out that arms control measures such as the nuclear non-proliferation treaty deny them benefits available to the developed world. Arms control has typically failed because the targeted countries felt they were not getting

---

[74] Klare, p. 142.

[75] Janne E. Nolan, Trappings of Power: Ballistic Missiles in the Third World, (Washington, D.C.: Brookings, 1991), p. 18.

[76] Avner Cohen and Marvin Miller, Nuclear Shadows in the Middle East: Prospects for Arms Control in the Wake of the Gulf Crisis, Working Paper for the Defense and Arms Control Studies Program, December 1990, p. 16.

[77] Segal, p. 2.

anything in return for the capabilities they were asked to forego. Now TMD provides the opportunity to change that.

Implications for TMD: Policy Options

Depending on what the U.S. seeks to gain, the relative significance defenses may have in the recipient country and region, the urgency of the situation, and the amount of control the U.S. feels it needs to exert over deployment, the U.S has several options for the transfer of TMD systems:

--**Outright refusal to allow the transfer of TMD in any way.**

--**Deployment only in conjunction with U.S. forces.** While this greatly reduces the impact of TMD as a policy tool, the issue of control is avoided since the systems would be operated by the U.S.

--**Allow purchase, with or without strings attached.** This provides the least amount of control and influence over how defenses are employed, but some countries like the NATO allies may be trusted to safeguard U.S. interests.

--**Subsidized purchases or outright gifts with strings attached.** In some cases it may be in the interest of the U.S. to aid in the procurement of defenses, provided adequate assurances are given that certain stipulations prohibiting modification or transfer to third parties will be met.

--**Lend/lease arrangements.** With such provisional transfers, the U.S. could reserve the right to withdraw defense systems if they are misused. Whether such systems would be manned by U.S. personnel raises advantages and disadvantages that would have to be considered. On one hand, the U.S. would have greater direct control. However, such a circumstance could endanger those personnel and directly involve the U.S. in a conflict it might not want to be drawn into.

Policy Implementation: Decision Guidelines

To take advantage of the unique characteristics of TMD and avoid the pitfalls of past arms transfers, theater missile defenses cannot be treated the same way as offensive weapons. The transfer of TMDs as a foreign policy tool should be approached with three general guidelines in mind:

1) **TMDs should maintain a low political profile and be a matter of quiet diplomacy.** The U.S. should not aggressively advertise its defense systems or actively seek out potential customers. This avoids the problem of according ballistic missiles more significance than they may actually deserve. In addition, a low profile may help deemphasize the development of offensive countermeasures. The most successful use of TMD in foreign policy will be with countries the U.S. already has a relationship of trust established and who are internally stable.

2) **TMD transfers should be used to pursue carefully selected objectives.** Defense systems should not be used for political expediency or to foster marriages of convenience as past arms transfers have been. Nor should TMD transfers be pursued for economic incentives or political manipulation. The U.S. should not expect too much from defense transfers.

3) **Employment of TMD in foreign policy should be coordinated and integrated with prioritized U.S. policies and objectives.** All too often in the past, different U.S. policy objectives have conflicted or worked toward opposite ends. The risk of exploitation requires the use of TMDs to be closely coordinated with other policies for maximum effectiveness. Also, ballistic missile proliferation is but one piece of a larger problem of arms control and international security. Consequently, the role of TMDs should be appropriately subordinated to higher policy objectives.

Specific Criteria

The impact of defenses ultimately rests on how TMD fits into the dynamics of the region to which they are introduced. Therefore, transfers of defenses need to be handled on a case-by-case basis with the regional context kept in mind. Certain characteristics of the recipient nation should be taken into account when considering the transfer of TMDs:

--**Regional stability and political climate.** As highlighted earlier, the introduction of weapon systems--offensive or defensive--can have a significant impact on balances of power and stability. The political winds must be judged to determine what sort of diplomatic overtures need to be made, what sort of compensation excluded neighbors should be given, and what sort of political and military strings need to be attached to a deal.

--**National doctrine.** TMD systems should not be made available to countries who have traditionally espoused territorial expansion and aggression toward neighboring countries.

--**Relative sophistication of military forces and infrastructure.** The U.S. must be wary of countries with indigenous missile production or modification capabilities. Such countries might use TMD technology to enhance their offensive capability, thereby endangering U.S. interests.

--**Relationships with other countries that conflict with U.S. interests.** To avoid exploitation of TMD capabilities for offensive enhancement, the U.S. will want to avoid providing TMD systems to countries with conflicting alliances who might transfer technology to other countries with missile production or modification capabilities. This is the hardest judgement to make given the nature of shifting alliances in many troubled regions. No one may be above suspicion, as shown by the recent allegations that Israel transferred Patriot technology to China.

CONCLUSION

Ballistic missiles pose an immediate threat to U.S. interests and allies abroad. Particularly worrisome is the growing trend of ever-increasing capabilities and the coupling of missile technology with weapons of mass destruction. The military, political, and psychological significance accorded to missiles in the Third World cannot be lightly dismissed.

Theater missile defenses offer the only response to all three dimensions of the threat posed by ballistic missiles. The fundamentally different characteristics of defenses imply a need for a new approach to the way these weapon systems are utilized in foreign policy. The inherent non-provocative nature of TMD offers new possibilities for filling the traditional roles of symbolism, substitution, and leverage offensive arms have played in the past. In addition, the characteristics of defenses offer a wider role in arms control.

This paper has outlined the various options for the transfer of TMDs to other countries as part of foreign policy. To avoid the pitfalls endemic to any use of arms in this capacity, decision guidelines and specific criteria were also established. The role TMDs can play in foreign policy should not be overlooked. Theater missile defenses offer a unique approach to furthering U.S. interests and provide a counter to a growing threat that has until now gone unanswered.

BIBLIOGRAPHY

Arnett, Eric H. Issue Paper: Ballistic Missile Defense After the Kuwait War. Washington D.C.: American Association for the Advancement of Science, 1991.

Asker, James R. "Allies Show New Interest in SDI, Theater Missile Defense Research." Aviation Week and Space Technology, 17 June 1991.

Aspen Strategy Group. New Threats: Responding to the Proliferation of Nuclear, Chemical, and Delivery Capabilities in the Third World. Lanham: Aspen Strategy Group and University Press of America, 1990.

Assessing Ballistic Missile Proliferation and Its Control. John Harvey and Uzi Rubin, co-chairs. Stanford: Stanford University Center for International Security and Arms Control, 1991.

Bailey, Kathleen C. "Can Missile Proliferation be Reversed?" Orbis 35 (Winter 1991): 5-14.

Carus, Seth. Ballistic Missiles in the Third World: Threat and Response. New York: Praeger, 1990.

Cohen, Avner and Miller, Marvin. Nuclear Shadows in the Middle East: Prospects for Arms Control in the Wake of the Gulf Crisis. Working paper for the Defense and Arms Control Studies Program, December 1990.

Fetter, Steve. "Ballistic Missiles and Weapons of Mass Destruction: What is the Threat? What is to be Done?" International Security 16 (Summer 1991): 5-42.

Feuerwerger, Marvin. The Arrow Next Time? Israel's Missile Defense Program for the 1990s. Washington D.C.: Washington Institute for Near East Policy, 1991.

Gargan, Edward A. "The Chastened Pakistanis: Peace With U.S. is Aim." New York Times, 19 February 1992, p. A10.

Hafner, Donald, and Roper, John, eds. ATBMs and Western Security. Cambridge: Ballinger, 1988.

Holdren, John and Rotblat, Joseph, eds. Strategic Defences and the Future of the Arms Race. London: Macmillan Press, 1987.

Hughs, David. "Saudi Order to Keep Patriot Line Open as Performance in Israel is Questioned." Aviation Week and Space Technology, 25 November 1991.

Ibrahim, Youssef M. "To Counter Iran, Saudis Seek Ties with Ex-Soviet Islamic Republics." New York Times, 22 February 1992, p. A4.

Klare, Michael T. American Arms Supermarket. Austin: University of Texas Press, 1984.

Kubbig, Bernd W. The SDI Memorandum of Understanding Between Bonn and Washington: A Review of the first Three Years. Frankfurt: Peace Research Institute Frankfurt, 1989.

Lewis, Paul. "Pakistan Tells of Its A-Bomb Capacity." New York Times, 8 February 1992, p. A5.

Nolan, Janne E. Trappings of Power: Ballistic Missiles in the Third World. Washington D.C.: Brookings, 1991.

Orman, Stanley. "Allied Perspectives of Strategic and Theater Missile Defense." Briefing to AUSA-USASDC Symposium, "Army Strategic and Theater/Tactical Missile Defense: A Critical Element in the New National Strategy." December 1991.

Postol, Theodore A. "Lessons of the Gulf War Experience with Patriot." International Security 16 (Winter 1991/1992): 119-171.

Potter, William C. and Stulberg, Adam. "The Soviet Union and Ballistic Missiles." Survival 32 (November/December 1990): 543-557.

Quayle, Dan; Hunter, Robert E.; and Farmer, C. Elliot, eds. Strategic Defense and the Western Alliance. Washington D.C.: Center for Strategic and International Studies, 1986.

Rubin, Uzi. "How Much Does Missile Proliferation Matter?" Orbis 35 (Winter 1991): 29-39.

Schmidt, Rachel. U.S. Export Control Policy and the Missile Technology Control Regime. Santa Monica: RAND, 1990.

Schmitt, Eric. "White House Eager and Anxious, Wants to Sell 72 F-15's to Saudis." New York Times, 26 February 1992, p. A6.

Sciolino, Elaine. "U.S. Agencies Split Over North Korea." New York Times, 10 March 1992, p. A1.

Segal, Gerald, ed. Arms Control in Asia. New York: St. Martin's Press, 1987.

Shuey, Robert. Missile Proliferation: A Discussion of U.S. Objectives and Policy Options. Washington D.C.: Congressional Research Service, 1990.

Shuey, Robert D.; Lenhart, Warren W.; Snyder, Rodney A.; Donnelly, Warren H.; Mielke, James E.; and Moteff, John D. Missile Proliferation: Survey of Emerging Missile Forces. Washington D.C.: Congressional Research Service, 1989.

Stockholm International Peace Research Institute. SIPRI Yearbook 1989: World Armaments and Disarmament. New York: Oxford University Press, 1989.

U.S. Arms Control and Disarmament Agency. World Military Expenditures and Arms Transfers 1988. Washington D.C.: U.S. Government Printing Office, 1989.

U.S. Congress. Senate. Armed Services Subcommittee on Strategic Forces and Nuclear Deterrence. Testimony of Henry F. Cooper, Statement on the Strategic Defense Initiative, 102d Cong., 1st sess., 20 June 1991.

U.S. Congress. Senate. Armed Services Subcommittee on Strategic Forces and Nuclear Deterrence. Statement of Assistant Secretary of Defense for International Security Policy Stephen J. Hadley, 102d Cong., 1st sess., 20 June 1991.

U.S. Congress. Senate. National Defense Authorization Act for Fiscal Years 1992 and 1993, 102d Cong., 1st sess., 19 July 1991, Rept. 102-113.

U.S. Strategic Defense Initiative Organization. Report to the Congress on the Strategic Defense Initiative. Washington D.C.: U.S. Government Printing Office, 1991.

APPENDIX

THIRD WORLD BALLISTIC MISSILE CAPABILITIES

Missile/ Rocket	Payload (pounds)	Range (miles)	CEP	Status
AFGHANISTAN				
SCUD-B	1,100	190	980yds	D
ALGERIA				
FROG-7	1,000	40	440yds	D
ARGENTINA (Nuclear R&D)				
IIAE CONDOR I	880	60	N/A	R&D
IIAE CONDOR II	1,000	500-600	N/A	R&D
IIAE CASTOR	N/A	190	N/A	FOR RESEARCH
BRAZIL (Nuclear R&D)				
ORBITA MB/EE-150	1,100	90	N/A	R&D
ORBITA MB/EE-350	N/A	215	N/A	R&D
ORBITA MB/EE-600	N/A	370	N/A	R&D
ORBITA MB/EE-1000	N/A	620	N/A	R&D
AVIBRAS SS-300	N/A	185	N/A	R&D
AVIBRAS SS-1000	N/A	740	N/A	R&D
INPE SONDA IV	N/A	560	N/A	FOR RESEARCH
MECB VLS	N/A	900	N/A	SPACE LAUNCHER
CUBA				
FROG-7	1,000	40	440yds	D
EGYPT (Chem wpns)				
FROG-7	1,000	40	440yds	D
SCUD-B	1,100	190	980yds	D
NEW SCUD-B	2,200	190	980yds	R&D
BADR-2000 (CONDOR II)	1,000	500-600	N/A	TERMINATED
SAKR 80	450	50	N/A	D
AL ZAFIR	N/A	225	N/A	R&D
AL KAHIR	N/A	360	N/A	R&D
AL ARED	N/A	570	N/A	R&D

(APPENDIX CONTINUED)

THIRD WORLD BALLISTIC MISSILE CAPABILITIES

Missile/ Rocket	Payload (pounds)	Range (miles)	CEP	Status
GREECE				
HONEST JOHN	N/A	25	UNGUIDED	D
INDIA (Nuclear wpns capable)				
PRIVTHI	2,200	150	N/A	R&D
AGNI	N/A	1,500	N/A	R&D
ISRO SLV-3	N/A	480	N/A	SPACE LAUNCHER
ISRO ASLV	N/A	720	N/A	R&D(S. LAUNCH.)
ISRO POLAR SLV	N/A	1200	N/A	R&D(S. LAUNCH.)
INDONESIA				
RX-250	N/A	150	N/A	R&D
IRAN (Nuclear R&D; Chem weapons)				
FROG-7	1,000	40	440yds	D
SCUD-B	1,100	190	980yds	D
OGHAB (EAGLE)	N/A	25	N/A	D
IRAN-130	N/A	80	N/A	D
IRAQ (pre-war; Nuclear R&D; Chem wpns; possible Bio wpns)				
FROG-7	1,000	40	440yds	D
SCUD-B	1,100	190	980yds	D
AL-HUSAYN (SCUD-B MOD)	N/A	375	1-2miles	D
AL-ABBAS (SCUD-B MOD)	N/A	560	1-2miles	D
CONDOR II	1,000	500-600	N/A	R&D
SS-12 (?)	2,750	560	800yds	D
ISRAEL (Nuclear wpns capable; Chemical wpns)				
JERICHO I	226(nuclear?)	400	N/A	D
JERICHO II	226(nuclear?)	900	N/A	R&D
LANCE	600	80	400yds	D
KOREA, N. (Nuclear R&D; Chem wpns; possible Bio wpns)				
FROG-7	1,000	40	440yds	D
SCUD-B	1,100	190	980yds	D

(APPENDIX CONTINUED)

THIRD WORLD BALLISTIC MISSILE CAPABILITIES

Missile/ Rocket	Payload (pounds)	Range (miles)	CEP	Status
KOREA, S. (Nuclear R&D; Chem wpns)				
HONEST JOHN	N/A	25	UNGUIDED	D
KOREAN SSM	N/A	110-160	N/A	D
KUWAIT				
FROG-7	1,000	40	440yds	D
LIBYA (Seeking Nuclear wpns; Chem wpns capable)				
FROG-7	1,000	40	440yds	D
SCUD-B	1,100	190	980yds	D
SS-21	1,000	75	330yds	D
ORTAG (?)	N/A	300	N/A	R&D
PAKISTAN (Nuclear capable; possibly seeking chem wpns)				
HAFT I KING HAWK	N/A	50	N/A	R&D
HAFT II KING HAWK	1,100	180	N/A	R&D
SAUDI ARABIA (Possibly seeking chem wpns)				
CSS-2 (DF-3A MOD)	4,500	1600-1800	1.5miles	D
SOUTH AFRICA (Probable Nuclear wpns capable)				
UNKNOWN	N/A	N/A	N/A	R&D
SYRIA (Chem wpns; possibly seeking bio wpns)				
FROG-7	1,000	40	440yds	D
SCUD-B	1,100	190	980yds	D
SS-21	1,000	75	330yds	D
TAIWAN (Nuclear R&D; chem wpns; possibly seeking bio wpns)				
HONEST JOHN	N/A	25	UNGUIDED	D
CHING FING (GREEN BEE)	N/A	60	N/A	TERMINATED
SKY HORSE	N/A	620	N/A	UNKOWN
TURKEY				
HONEST JOHN	N/A	25	UNGUIDED	D

(APPENDIX CONTINUED)

THIRD WORLD BALLISTIC MISSILE CAPABILITIES

Missile/ Rocket	Payload (pounds)	Range (miles)	CEP	Status
YEMEN, N.				
SS-21	1,000	75	330yds	D
YEMEN, S.				
FROG-7	1,000	40	440yds	D
SCUD-B	1,100	190	980yds	D
SS-21	1,000	75	330yds	D

NOTES: All payloads are conventional high explosives unless noted (Israel). CEP = Circle Error Probable, or the radius of a circle in which half of a missile's warheads are expected to land. D = Deployed; R&D = in Research and Development. N/A = Not Available.

SOURCES:

Robert D. Shuey, et al., Missile Proliferation: Survey of Emerging Missile Forces (Washington D.C.: Congressional Research Service, revised 9 February 1989), pp. 35-42.

Aaron Karp, "Ballistic Missile Proliferation in the Third World," in SIPRI Yearbook 1989: World Armaments and Disarmament, Stokholm International Peace Research Institute (New York: Oxford University Press, 1989), pp. 287-318.

U.S., Arms Control and Disarmament Agency, "Brief: Ballistic Missile Proliferation in the Developing World" in World Military Expenditures and Arms Transfers 1988 (Washington D.C.: U.S. Government Printing Office, 1989), pp. 17-20.

Rachel Schmidt, U.S. Export Control Policy and the Missile Technology Control Regime (Santa Monica: RAND, 1990), pp. 7-8.

Steve Fetter, "Ballistic Missiles and Weapons of Mass Destruction: What is the Threat? What is to be Done?" in International Security 16 (Summer 1991): 14.